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(54) Title: PROCESS AND APPARATUS FOR THE POLYMERIZATION OF ETHYLENE

(57) Abstract: Process for preparing a broad molecular weight polyethylene by polymerizing ethylene in the presence of a polymerization catalyst, the process comprising the following steps, in any mutual order: a) polymerizing ethylene, optionally together with one or more a-olefinic comonomers having from 3 to 12 carbon atoms, in a gas-phase reactor in the presence of hydrogen, b) copolymerizing ethylene with one or more a-olefinic comonomers having from 3 to 12 carbon atoms in another gas-phase reactor in the presence of an amount of hydrogen less than step a), where in at least one of said gas-phase reactors the growing polymer particles flow upward through a first polymerization zone under fast fluidization or transport conditions, leave said first polymerization zone and enter a second polymerization zone through which they flow downward under the action of gravity.